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10/508,937	04/13/2005	Tadashi Utsunomiya	Q83622	5196

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EXAMINER	
LIGHTFOOT, ELENA TSOY	

ART UNIT	PAPER NUMBER
1792	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/508,937	UTSUNOMIYA ET AL.	
	Examiner	Art Unit	
	ELENA Tsoy LIGHTFOOT	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5,7,8,10,12-20 and 22-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,7,8,10,12-20 and 22-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

Amendment filed on November 9, 2009 has been entered. Claims 1, 9, 11 and 21 have been cancelled. New claims 22-24 have been added. Claims 1, 4, 5, 7, 8, 10, 12-20, and 22-24 are pending in the application.

Claims examined on the merits are 1, 4, 5, 7, 8, 10, 12-20, and 22-24.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Rejection of claims 1, 4, 5, 7, 8, 16-17 and 20 under 35 U.S.C. 103(a) as being unpatentable over Wakamatsu (JP 2001182836 A) in view of Bernd et al (US 5731541) has been withdrawn due to amendment.

3. Rejection of claims 8, 10, and 12-15 under 35 U.S.C. 103(a) as being unpatentable over Wakamatsu '836 in view of Bernd et al '541 or over Kawabuchi et al '463 in view of Bernd et al '541, and further in view of Watanabe et al '392 has been withdrawn due to amendment.

4. Claims 1, 4, 5, 10, 12-18 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (JP 2001225392 A).

Watanabe et al is applied here for the same reasons as set forth in paragraph 5 of the Office Action mailed on 7/9/09.

As to claimed h/w ratio of 1.3-3.0, Watanabe et al teaches that it is better that h/w value be as **large as possible**, *preferably* 0.6-1.0 (See P21). Note that in Fig. 5, h/w ratio is **1.1**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have extruded gasket material with h/w larger than 1, including claimed values of **1.3** or more, since Watanabe et al does not limit its teaching to particular values.

As to claimed extruder of claim 1, Watanabe et al teaches that the gasket material is extruded under air pressure (claimed pneumatic-type extruder) (See P18).

As to shear rate and viscosity of claim 1, Watanabe et al teaches that gasket material is thixotropic that maintains high viscosity in a static state but low viscosity upon extrusion (See P23) that has viscosity of 10,000-80,000 mPa-s at 20 rpm and 200,000-500,000 mPa-s at 2 rpm (See P23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a thixotropic UV-curable composition as a gasket material and rotating dispenser in the cited prior art with the expectation of providing the desired easy extrusion due to low viscosity and desired shape of the extruded gasket due to high viscosity in a static state, as taught by Watanabe et al.

Since the viscosity of the thixotropic composition depends on shear rate, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the *optimum* values of the relevant viscosity and corresponding shear rate parameters (including those of claimed invention) in Watanabe et al through

routine experimentation depending on particular coating composition in the absence of a showing of criticality.

It is the Examiner's position that **optimum values** of viscosity and shear rate that achieve gasket shape of claimed h/w, would correlate according to claimed equation y= -ax + b, wherein the a value is 0.3 or more.

As to claims 4, 5 and 22-24, Watanabe et al teaches that it is better that h/w value be **as large as possible**, *preferably* 0.6-1.0 (See P21). Note that in Fig. 5, h/w ratio is **1.1**.

Watanabe et al fails to teach that a gasket material may be re-applied over the applied and cured gasket material thereby forming a two-stage gasket. However, it is a well-known principle to reapply a coating composition to achieve a desired thickness of a final coating. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have reapplied a gasket material in Watanabe et al, according to well-known principle, with the expectation of providing the desired h/w larger than 1, including claimed values of **1.3** or more, since Watanabe et al does not limit its teaching to particular values.

It is the Examiner's position that the second layer of the gasket material is applied to the cured first layer in order to preserve the height and the shape of the applied gasket.

5. Claims 1, 4, 5, 7, 8, 10, 12-17, 20, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakamatsu (JP 2001182836 A) in view of Watanabe et al '392.

Wakamatsu is applied here for the same reasons as set forth in paragraph 4 of the Office Action mailed on 7/9/09.

As to claimed h/w ratio of 1.3-3.0, Wakamatsu teaches that the ratio (h/w) of a height (h) of the gasket to a line width (w) thereof on a joint surface between the gasket and the cover member is in the range of >1 (See Claims 1 and 4; P38), e.g. **1.5** (See P16).

As to shear rate and viscosity of claim 1, Wakamatsu fails to teach that that the gasket material is thixotropic composition. However, Watanabe et al teaches that a thixotropic UV-curable composition that maintains high viscosity in a static state, e.g. 200,000-500,000 mPa-s at 2 rpm (See P23) but low viscosity, e.g. 10,000-80,000 mPa-s at 20 rpm, can be used as a gasket material (See P23) that easily dispensable but maintains shape after extrusion (See P23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a thixotropic UV-curable composition as a gasket material and rotating dispenser in Wakamatsu with the expectation of providing the desired easy extrusion due to low viscosity and desired shape of the extruded gasket due to high viscosity in a static state, as taught by Watanabe et al.

Since the viscosity of the thixotropic composition depends on shear rate, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant viscosity and corresponding shear rate parameters (including those of claimed invention) in Wakamatsu in view of

Watanabe et al through routine experimentation depending on particular coating composition in the absence of a showing of criticality.

It is the Examiner's position that **optimum values** of viscosity and shear rate that achieve gasket shape of claimed h/w, would correlate according to claimed equation y= -ax + b, wherein the a value is 0.3 or more.

As to claimed extruder of claim 1, Wakamatsu fails to teach that the gasket material is extruded under air pressure (claimed pneumatic-type extruder). However, Watanabe et al teaches that the gasket material can be extruded under air pressure (claimed pneumatic-type extruder) (See P18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a pneumatic-type extruder in the cited prior art since Watanabe et al teaches that pneumatic-type extruder is suitable for extruding a gasket material.

As to claims 4, 5 and 22-24, Wakamatsu teaches that a two-stage gasket may be applied by extruding the gasket material onto the applied gasket material (See Fig. 18B). Since Wakamatsu does not teach that the applied gasket material should be in uncured state before applying next layer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have extruded a gasket material onto the applied gasket material after curing to better preserve the shape of the applied gasket material.

6. Claims 1, 4, 5, 10, 12-18 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al '392 in view of Wakamatsu '836.

Watanabe et al '392 and Wakamatsu '836 are applied for the reasons discussed above.

As to claims 4, 5 and 22-24, Wakamatsu teaches that a two-stage gasket may be applied by extruding the gasket material onto the applied gasket material (See Fig. 18B). Since Wakamatsu does not teach that the applied gasket material should be in uncured state before applying next layer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have extruded a gasket material onto the applied gasket material after curing to better preserve the shape of the applied gasket material.

7. Claims 1, 4, 5, 7, 8, 10, 12-20, and 22-24 under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al '392, as applied above, and further in view of Bernd et al (US 5731541).

As to h/w larger than 1.3, Watanabe et al teaches that it is better that h/w value be as **large as possible**, *preferably* 0.6-1.0 (See P21). Note that in Fig. 5, h/w ratio is **1.1**. Watanabe et al fails to teach that a two-stage gasket may be applied by extruding the gasket material onto the applied gasket material.

However, Bernd et al teaches that a two-stage gasket offers improved elasticity aided both by the compressibility and by the bending ability of the profile (See Fig. 5 and column 7, lines 37-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a two-stage gasket (having claimed h/w larger than 1.3) in Watanabe et al instead of one-stage gasket, with the expectation of

providing the desired improved elasticity aided both by the compressibility and by the bending ability of the profile, as taught by Bernd et al.

As to claimed extruder of claim 1, Watanabe et al teaches that the gasket material is extruded under air pressure (claimed pneumatic-type extruder) (See P18).

8. Claims 1, 4-5, 12-19 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabuchi et al (US 5,945,463) in view of Watanabe et al '392.

Kawabuchi et al is applied here for the same reasons as in previous Office Actions.

As to claimed h/w ratio of 1.3-3.0, Note that h/w ratio 0.5-1.5 to 0.167-0.5 of Kawabuchi overlaps claimed range of 1.3-3.0. It is held that overlapping ranges are *prima facie* evidence of obviousness. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Therefore, it would have been obvious to one having ordinary skill in the art to have selected the portion of Kawabuchi et al's range that corresponds to the claimed range. It is the Examiner's position that the h/w ratio is achieved in at least 80% or more portion of the gasket because it is formed by the automatic coating controlling apparatus using the same gasket material.

As to shear rate and viscosity of claim 1, Kawabuchi et al fails to teach that that the gasket material is thixotropic composition. However, Watanabe et al teaches that a thixotropic UV-curable composition that maintains high viscosity in a static state, e.g. 200,000-500,000 mPa-s at 2 rpm (See P23) but low viscosity, e.g. 10,000-80,000 mPa-s at 20 rpm, can be used as a gasket material (See P23) that easily dispensable but maintains shape after extrusion (See P23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a thixotropic UV-curable composition as a gasket material and rotating dispenser in the cited prior art with the expectation of providing the desired easy extrusion due to low viscosity and desired shape of the extruded gasket due to high viscosity in a static state, as taught by Watanabe et al.

Since the viscosity of the thixotropic composition depends on shear rate, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant viscosity and corresponding shear rate parameters (including those of claimed invention) in Kawabuchi et al in view of Watanabe et al through routine experimentation depending on particular coating composition in the absence of a showing of criticality.

It is the Examiner's position that **optimum values** of viscosity and shear rate that achieve gasket shape of claimed h/w, would correlate according to claimed equation y= -ax + b, wherein the a value is 0.3 or more.

As to claimed extruder of claim 1, Watanabe et al teaches that the gasket material is extruded under air pressure (claimed pneumatic-type extruder) (See P18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a pneumatic-type extruder in Kawabuchi et al since Watanabe et al teaches that pneumatic-type extruder is suitable for extruding a gasket material.

9. Claims 1, 4-5, 12-19 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabuchi et al '463 in view of Watanabe et al '392, as applied above, and further in view of Bernd et al '541.

Kawabuchi et al fails to teach that a two-stage gasket may be applied by extruding the gasket material onto the applied gasket material.

Bernd et al is applied here for the same reasons as above. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a multi-stage gasket in Kawabuchi et al instead of one-stage gasket, the multi-stage gasket having claimed profile with the expectation of providing the desired improved elasticity aided both by the compressibility and by the bending ability of the profile, as taught by Bernd et al.

As to claim 23, Kawabuchi et al discloses that the gasket material may be cured while extruding using UV apparatus that is moved together with a dispenser (See Figs. 1 and 2; column 9, lines 23-40).

10. Claims 7, 8, 10, 12-15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al '392 or over Watanabe et al '392 in view of Bernd et al '541 or over Kawabuchi et al '463 in view of Watanabe et al '392 or over Kawabuchi et al '463 in view of Watanabe et al '392, further in view of Bernd et al '541, as applied above, and further in view of Wakamatsu '836.

The cited prior art fails to teach that the dispensing part is rotated (Claims 7-8, 20); and the extrusion orifice has a cross-sectional shape selected from ellipse, semi-ellipse formed by cutting a part of ellipse along a line parallel with the minor axis,

rhombus, quadrangle and triangle, and is rotated according to the moving direction of the extrusion orifice such that a minor axis of ellipse, a straight line of semi-ellipse, a short diagonal line of rhombus, a short side of quadrangle or a base of triangle is always kept substantially perpendicular to the moving direction (Claim 8).

Wakamatsu teaches that uniform cross-sectional shape of the extruded gasket material is provided (See P21-22) by using a rotating dispenser having an extrusion orifice of a cross-sectional shape selected from *ellipse, semi-ellipse, rhombus quadrangle and triangle* (See P15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a rotating dispenser in the cited prior art having an extrusion orifice of a cross-sectional shape selected from ellipse, semi-ellipse, rhombus quadrangle and triangle with the expectation of providing the desired uniform cross sectional form of an extruded gasket material, as taught by Wakamatsu.

11. Claims 4, 5, 8, 10, 12-20, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al '392 or over Wakamatsu '836 in view of Watanabe et al '392 or over Watanabe et al '392 in view of Wakamatsu '836 or over Watanabe et al '392 in view of Bernd et al '541, as applied above, and further in view of Kawabuchi et al '463.

The cited prior art fails to teach that an irradiation device is moved in association with the extrusion orifice of the three-dimensional automatic coating controlling apparatus.

Kawabuchi et al teaches that a gasket material extruded from an extrusion orifice onto the cover may be cured while extruding using UV apparatus that is moved together with a dispenser to maintain an extruded shape (See Figs. 1 and 2; column 9, lines 23-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV apparatus that is moved together with a dispenser for curing a gasket material in the cited prior art with the expectation of providing the desired maintaining extruded shape, as taught by Kawabuchi et al.

Response to Arguments

12. Applicant's arguments with respect to claims 1, 4, 5, 7, 8, 10, 12-20, and 22-24 have been considered but are moot in view of the new ground(s) of rejection.

As to Kawabuchi et al

Applicants assert that the section of Kawabuchi cited by the Examiner describes an apparatus for discharging and curing gasket material using UV light. See Col. 9, lines 23-27. As shown in Fig. 1, the apparatus is equipped with a pipe 2 for supplying a composition curable by UV light, a dispenser 3 and a control part for an X-Y-Z driving robot 1,. See Col. 9, lines 28-32. Kawabuchi describes the dispenser, which transfers the UV light curable composition from a storage tank, being controlled by the X-Y-Z-driving robot 1 to discharge the composition in a specific shape. See Col. 9, lines 32-36. In other words, Kawabuchi describes a dispenser which discharges the UV light curable composition, and the dispenser is controlled by the X-Y-Z-drivinR robot 1. Fig. 2 shows the composition being discharged into a specified shape. Kawabuchi also describes an apparatus for irradiating UV light to cure the composition after it has been discharRed from the dispenser. See Col. 9, lines 36-40. However, Kawabuchi does not show the apparatus for irradiating UV light in any of the figures. Further, Kawabuchi neither teaches, nor even fairly suggests that the X-Y-Z-driving robot moves the apparatus for irradiating UV liRht in any way. Therefore, Applicant submits that Kawabuchi does not teach, or even fairly suggest "an ultraviolet light irradiation apparatus, and an irradiation outlet thereof is moved in association with the extrusion orifice of the three-dimensional automatic coating controlling apparatus" and thus the features of claim 19 are

patentable over this reference. Further, Bernd does not provide any teachings regarding moving a UV light irradiation apparatus in association with an extrusion orifice.

The Examiner respectfully disagrees with this argument. Kawabuchi teaches: "As an example of the present invention, FIG. 1 shows a schematic representation of an embodiment of the apparatus for discharging **and** curing the composition curable by ultraviolet light which is used for producing a gasket for sealing a gap between a dust cover and a container encasing a magnetic disk of HDD. The apparatus is equipped with a control part for an X-Y-Z-driving robot 1, a pipe for supplying a composition curable by ultraviolet light 2, a dispenser 3, **and** *an apparatus for irradiation* of ultraviolet light. The dispenser is controlled by the X-Y-Z-driving robot. The dispenser transfers the composition curable by ultraviolet light from a storage tank to a metal plate, i.e., a substrate to which the gasket is attached, and discharges the composition in a specified shape. The apparatus for irradiation of ultraviolet light irradiates ultraviolet light to the composition curable by ultraviolet light which has been discharged from the dispenser, and the composition is quickly cured" (See column 9, lines 23-40).

In other words, Kawabuchi explicitly teaches that **Fig. 1** shows a schematic representation of an embodiment of the apparatus for discharging **and** *an apparatus for irradiation* of ultraviolet light. Note that the apparatus in Fig. 1 moves together with dispenser 3. Therefore, in contrast to Applicants assertion, the apparatus for discharging **and** *an apparatus for irradiation* of ultraviolet light move together.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELENA Tsoy LIGHTFOOT whose telephone number is (571)272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy Lightfoot, Ph.D.
Primary Examiner
Art Unit 1792

February 1, 2010

/Elena Tsoy Lightfoot/